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# TIME MEASURES AND THE LAW


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PROPOSALS to reform the present calendar must necessarily attract the attention of the lawyer in active practice, for there is perhaps no one to whom the calendar is more important. It has been suggested that the lawyer's diary is as indispensable to him as a schedule and a watch are to a locomotive engineer. The comparison errs on the side of understatement, for the diary of the active lawyer varies so greatly from day to day and touches upon so many different aspects of so many different matters that it would be more nearly comparable to a railroad schedule which changed completely every day, if not indeed more often.

To one who thinks of a lawyer in terms of litigation the importance of the calendar is manifest. Nearly everyone is familiar with the statute of limitations which defines the time within which the various types of actions and proceedings may be brought. After the action has been commenced there is the time of the defendant to appear, the time of both parties to plead, the time to make motions relative to the pleadings, and the time to have the cause placed upon the calendar of the court. If the ultimate decision is adverse there is the time within which to appeal, the time to formulate the case on appeal, the time to serve the briefs and the time to present the oral argument. All of these steps, of which there are literally hundreds, must be performed within a certain time which in itself is reckoned from some previous time.

To the lawyer who abstains from litigation the calendar is none the less

indispensable. He must bear in mind, among other things, the time within which the taxes of his clients must be returned and paid, and these taxes include property taxes, inheritance taxes, income taxes, franchise taxes and a host of others. There are the times at which the principal and interest payments of mortgages must be met, the times at which meetings of directors and stockholders of corporations must be held, the times at which patent applications must be filed in foreign countries, the times at which claims must be filed against the estates of persons deceased. These are only a few of the hundreds of dates and times which he must bear constantly and continually in mind to preserve regularity of proceedings and avoid defaults which may occasion loss of property or money or both.

Since the element of time is of such immeasurable importance it is not to be wondered that there are hundreds of problems and immense volumes of litigation which have arisen from the failure to act within the times specified. So important, indeed, is the subject that many states have enacted statutes defining various time elements and indicating to the courts the manner in which time provisions must be construed. Chapter 22 of the Consolidated Laws of the State of New York is known as the General Construction Law. Out of less than one hundred sections more than ten are devoted to definitions of various terms which have to do with time. I set forth herewith five of these sections which evidence the effort to minimize so far as possible the differences which arise from different interpretations and different methods of computation:

> § 20. *Day, computation.* A number of days specified as a period from a certain day within which or after or before such an act is authorized or required to be done means such number of calendar days exclusive of the calendar day from which the reckoning is made. Sunday or a public holiday, other than a half holiday, must be excluded from the reckonings if it is the last day of any such period, or if it is an intervening day of any such period of two days.
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> § 30. *Month, computation.* A number of months after or before a certain day shall be computed by counting such number of calendar months from such day, exclusive of the calendar month in which such day occurs, and shall include the day of the month in the last month so counted having the same numerical order in days of the month as the day from which the computation is made, unless there be not so many days in the last month so counted, in which case the period computed shall expire with the last day of the month so counted.
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> § 50. *Time, computation.* Time shall continue to be computed in this state according to the Gregorian or new style. The

first day of each year after the year 1752 is the first day of January, according to such style.

§ 57. *Year, common and leap.* For the purpose of computing and reckoning the days of the year in the same regular course in the future, every year, the number of which in the Christian era is a multiple of four, is a bissextile or leap year consisting of 366 days, unless such number of year is a multiple of one hundred and the first two figures thereof treated as a separate number is not a multiple of four and every year which is not a leap year is a common year consisting of 365 days.

§ 58. *Year in statute, contract and public or private instrument.* The term year in a statute, contract, or any public or private instrument, means 365 days, but the added day of a leap year and the day immediately preceding shall for the purpose of such computation be counted as one day. The term year means twelve months, the term half year, six months, and the term a quarter of a year, three months.

The foregoing statement must in itself indicate what a tremendous advantage would accrue to a lawyer if the calendar were reformed. The multitude of computations and time reckonings which the lawyer must make would be obtained with simplicity and ease under a perpetual calendar. Moreover, the advantage would be even greater than appears upon the surface, for the problems are not merely those of computing and reckoning time. In the constitution and operation of the courts and of the various executive and administrative bureaus of both federal and local governments there are many things which can be done only on certain days of the week or on certain days of the month, and there are likewise many things which can be done *except* on certain days of the week or on certain days of the month. With a perpetual calendar under which, for example, the seventeenth day of February will always be synonymous with Friday a lawyer will not be likely to plan to be in Washington on the seventeenth to appear before a bureau which holds its hearings on Thursdays. Moreover, many particular terms of court and many hearings are scheduled by the days of the week as, for example, the first Monday of the month or the third Tuesday of the month. In many instances only one of these dates is available in a single month, and if the proceeding is not properly and promptly noticed for the particular day a whole month will be necessarily lost and in many cases, of course, the loss of a month is fatal. Where the calendar is so standardized that the first Monday of August is always the sixth and the third Tuesday of October is always the seventeenth there will be few errors in making the necessary calculations. In a very short time everyone will have memorized the calendar and know and remember its dates and days in the same way that he remembers

how to tell time on the face of a watch. This simplicity will make for accuracy and the benefit to the lawyer will be in many cases incalculable.

By the same token the acquired accuracy will serve to minimize the disputes and litigations which arise from errors of business men and others in the computations of time. Despite the intimations to the contrary which we sometimes hear, the lawyer who is worthy of his profession is interested at least as much in the prevention of litigation as he is in the pursuit of remedies in a dispute already arisen. As the physician today encourages public health reforms which minimize the chances of disease, so the lawyer is and will be interested in any reform which will lessen the disputes and misunderstandings that arise in the community.

Finally, the lawyer is interested in calendar reform because he is interested in the general welfare which it will stimulate. In this sense the point of view of the lawyer is necessarily broad for he sees with the eyes of all of his clients. His is the composite point of view of the manufacturer, the farmer, the banker, the dairyman, the broker, the store-keeper and all of the others with whose interests he is identified and whose legal welfare he attempts to safeguard. The whole community, producing, distributing, serving, consuming, measure and describe his profession. All of the benefits which a reformed calendar may be expected to contribute to the manufacturer, to the farmer, to the banker and to the others will, therefore, be of great and serious concern to the lawyer whose welfare and prosperity are identified with theirs.

I believe most lawyers will favor The World Calendar. This plan appears to have all of the advantages for which reform is sought, and has no apparent disadvantages. The International Fixed Calendar, on the other hand, appears to have several disadvantages. The year is divided into 13, and, as we all know, thirteen is a prime number and is not a multiple of two, three, four or six. Quarterly payments of principal and interest and dividends become necessarily irregular, for each quarter begins on a different date. Moreover, the first and fifteenth of the month invariably fall on Sunday. The thirteen month calendar would involve extra work and would increase expenses. It would increase the use of fractions which in itself would involve a loss of time and would make for inaccuracy. It would increase the number of monthly audits, the number of monthly salary payments and the number of monthly rent payments. It would cause thousands of extra monthly meetings of directors of corporations. Finally, it would increase the terms of court, and where terms are identical with months the thirteen month calendar would cause increased rotation of judges and involve unnecessarily increased expense.

The World Calendar is subject to none of these disadvantages and, on the contrary, offers a simple perpetual system which may be achieved with very little change and without disadvantage.

# RAILROAD VIEWPOINTS

*By* J. WELCH

Assistant Secretary-Treasurer of the Chicago, Milwaukee, St. Paul and Pacific Railroad

As chairman of a committee appointed by the Railway Treasury Officers Association to make a report on calendar simplification proposals, Mr. Welch has just completed an intensive study of the merits of various plans. His report was submitted at the annual meeting of his Association in Buffalo on September 18. The Association, however, passed a vote rejecting calendar reform and urging retention of the present calendar. Its action emphasizes the need for further widespread educational effort.

INDICATIONS are that a change in the existing calendar will undoubtedly be made. An international movement is definitely under way to accomplish a reform or a simplification. The question before the railroads then, is as to which of two specific proposals they prefer, the 13-month plan or the 12-month equal-quarters calendar.

Those who would change the calendar declare that our present one is irregular, clumsy, defective and a sort of hangover from a bygone age, which with its unequal months, split weeks and shifting dates of weekdays causes confusion and affects all the processes of civilization, especially those of the business world.

The function of my committee, appointed by the Railway Treasury Officers Association, was not to urge a change in the present calendar. It was rather to collect certain data on the suggested changes and submit them to our membership, to enable the Association to decide which of the proposed plans would be most acceptable to railroad treasurers. Our report could only summarize briefly certain features, for a detailed study of the calendar would fill a fair-sized volume. We did not deal with any contentions of a sociological or religious nature, because such considerations would unnecessarily complicate the problem.

Some 200 schemes of calendar reform have been submitted to the League of Nations, and according to their authors they are all wonderful. Only two proposals, however, are being seriously considered. One is the plan for 13 months of 28 days each; the other provides for 12 months of 30 days each, except the first month of each quarter which would have 31 days.

In the present calendar, the day and the week are standard and invariable and the year practically so, but the months are neither equal nor uniform. This variation of an important unit of the calendar has widespread effects. The purpose of a calendar is to measure and register the

passage of days throughout each year and to arrange in advance what dates shall be Sundays, week-days and holidays. Neither the length of the year nor that of the day of 24 hours can be altered, as these units are astronomically fixed. Both the month and the week, however, are arbitrary units used for measuring intermediate periods between the day and the year. They are not divisions of time indicated by the sun, moon or stars. The usefulness and convenience of the month would be increased if it were an exact multiple of the week and if the year were as exact a multiple of both the week and the month as nature permits.

Thirteen standard months of 28 days each is one of the most boasted proposals, leaving one loose day at the end of the ordinary year and two in leap years. Under this plan the months would be standard but there would be no convenient quarter or half year periods. In the matter of calculating interest say at the rate of 6 per cent per annum under the present calendar, the interest for one month is ½ of 1 per cent. Under the 13 equal month calendar the interest for one month would be 1/13 of 6 per cent. Interest for three months now is 1½ per cent. Under the 13-month calendar it would result in complicated fractions or endless rows of decimal figures.

Business does not like thirteen as a divisor for reckoning interest and dividends.

While the 13-month calendar would bring about a large degree of simplification as to the future, chaotic conditions with respect to the past would exist for some time. Monthly reports would be increased from 12 to 13; quarterly reports would have to be modified, perhaps, to a 13-week basis, and semi-annual reports to a 26-week basis. Comparisons would be difficult with all previous periods.

Wages and salaries are paid at an hourly, daily, weekly, monthly or yearly rate. So far as the hourly, daily and weekly rates are concerned the proposed 13-month calendar would have no particular effect. If the wage or salary is on an annual basis, it would seem obvious that, where payments were made at monthly intervals, the amount of each payment would be determined by dividing the total sum by 13 instead of 12; or, if paid on semi-monthly dates, by 26 instead of 24.

Since this plan proposes to change radically the month unit, wages now based upon that unit would be seriously disturbed. This is a situation which would apply to a very large number of railway employees. Management would be gravely concerned to know whether, under the proposed changes, employees would readily accept adjustments required to keep payrolls at existing levels. This is a matter of serious moment and no doubt railroad executives would desire to be fully assured with respect to it before committing themselves on calendar simplification.

There is, in addition, a peculiar situation in the railroad field, where

train and engine wage schedules provide for a guaranteed monthly minimum compensation, whether on basis of miles or otherwise. Railroad executives would need full assurance that amicable adjustments, without added costs, could be arrived at with respect to required adjustments here, before committing themselves on the calendar change question.

One serious objection to the 13-month calendar is that the off month would make difficult the division of the year into regular halves and quarters. Many people have a superstitious fear of the number 13, but there would be a Friday the 13th in every month. This would happen thirteen times every year.

The present is tied to the past and to the future by links of financial commitments and obligations. Changes in the calendar would cause some disturbance here, due to the fact that time is of the essence in financial relationships and in contracts.

Outstanding obligations, bearing interest and payable as to principal and interest at dates specified under existing calendar, would be affected by the proposed change. This fact has been recognized and a comprehensive table for making adjustments has been designed. These adjustments would have to be acceptable to all parties in interest. They would apply to interest dates, time and date conditions contained in short time notes, long-time bonds, equipment trust certificates, dividend payments, pension agreements, insurance policies, and the like.

It is possible to make the calculations for the necessary time and date adjustments, so that equality may be done to all parties at interest. These required computations, while entailing inconvenience, time and additional expense, would have to be made but once.

The contention that there would result a substantial saving due to prompter payments and quicker circulation of money did not greatly appeal to our committee.

The required adjustments to meet the proposed changes would undoubtedly incur considerable inconvenience and some expense. But once made, there would probably result certain satisfaction and convenience.

In various European groups there is an intelligent interest in the whole subject of calendar reform. It has seemed that European opinion is concentrating around the twelve-month plan.

The 12-month plan of calendar reform, as outlined by The World Calendar Association, has the following advantages:

Each month is directly comparable with every other month because it contains the same number of week-days. The calculation of future dates is simplified because there is an avoidance of shifting week day names to different dates in each succeeding year. Holidays can be fixed in perpetuity, say specified Monday. Easter and religious dates calculated from it, can be made fixed. The half years and quarters of years

are equal, each with a whole number of weeks and months, thus making possible direct comparisons without adjustments. The changes suggested are few and easy of adoption. Each quarter has exactly 13 weeks or 91 days, of which 13 are always Sundays and 78 are always week-days; each month has exactly 26 week-days.

Obviously, this is only a partial solution of the problems involved in calendar simplification. And yet it entails all the adjustments which are absolutely necessary. It centers attention upon making quarters and half years comparable. Summed up briefly, the proposal for 12 months with equal quarters is: (1) to retain the present 12 months as named; (2) to make each quarter contain three months with 31, 30 and 30 days, respectively; (3) to leave an extra day as a blank day at the end of the year.

Thus it is contended that the two fundamental defects in our present calendar, lack of comparability and lack of fixity, would be remedied.

One large defect of the existing calendar is its lack of "fixity." Days of the week shift each year to different dates. Since the days of the week have special significance in business operations, such as holidays, Saturday half-holidays, Sundays, etc., an adjustment to meet this fact is necessary before comparable business records can be kept.

The year contains 52 weeks plus one or, in leap years, two days. Under the present calendar, the year begins and ends on different days of the week. So, likewise, periodical events come on different week days, such as national, state and religious holidays. Conspicuous in its lack of fixity is Easter, from which are reckoned many other special days.

Now it is urged that business, if well managed, "controls its operations on the basis of statistics of its past performance." Its program for the future will have past and current records for guidance. The month is the most commonly used unit of time in business records. If comparability on this basis is distorted error ensues. For example, a difference of 11 per cent exists as a minimum between the week days in March and February, and this difference may be increased through holidays to 19 per cent. Calculations of salaries, interest, insurance, pensions, and rent which are fixed on a monthly, quarterly or half-yearly basis are inaccurate and do not correspond with one-twelfth, one-quarter or half the year.

It is suggested by all calendar reformers that holidays be "fixed" on a certain day of the week. Thus each holiday would fall on precisely the same day of the week in the same week every year. The fixity of holidays on Monday would have the advantage of greater continuity of work in offices, factories and shops. It would be expected also that there would result a beneficial effect on the morale of employees as they would not only secure more benefit from a holiday which is combined with a week-end but also that they would be subject to less interruption during the days immediately preceding and succeeding holidays.

# AS THE BANKER SEES IT

By H. Parker Willis

Since 1917 the author of this article has been Professor of Banking at Columbia University, after a distinguished career in education, finance and legislation. He is the author of many standard works, such as his "Principles of Modern Banking," "Principles of Accounting," "The Federal Reserve System," "American Banking," "Foreign Banking Systems," "Business and Banking," and "Investment Banking." As expert to the House of Representatives Committee on Banking and Currency, and to the Joint Committee on Rural Credit, he had a large part in drafting the Federal Reserve Act and the Federal Farm Loan Act. His foreign experience included several years as president of the Philippine National Bank, as commissioner in Australasia for the Chase National Bank, and later as chairman of the Banking Commission of the Irish Free State. From 1920 to 1931 he was editor-in-chief of the New York Journal of Commerce, national financial newspaper.

PERHAPS there is no business in which the element of time and its measurement is more important than in banking and finance. Methods of ascertaining and measuring it are, therefore, fundamentally significant, and legal or customary prescriptions, as to dates on which given types of business operations may or may not occur, involve possibilities of inconvenience and of loss or gain that cannot be overestimated.

The banker is thus deeply interested in the calendar. He wants it to be as simple and clear as possible; and above all he would be helped if he could be granted some degree of uniformity in the treatment of time by different jurisdictions and governments. Just at present, he has constantly to fight against the difficulties involved in our present calendar system, aggravated by the supplementary legislation on holidays that has built up a complicated network of prohibitions as to the performance of business.

Every people has its national holidays; and the same is true of every religious organization. To some extent, there has also developed in most countries a system of political and party holidays; and in many cases holidays of the latter type have succeeded in gaining legal recognition. To the banker and financier such a holiday means suspension of business, inasmuch as, if legal, the holiday prohibits financial transactions, such as the formal presentation of notes, drafts, and the like, from being authentic or recognized. Dating of legal documents on Sundays or other holidays is undesirable, often illegal, and presentation of them on such dates inconvenient, and usually without warrant of law. Those which fall due on Sunday or some other holiday, are, in most countries, either

by common consent or (as the case may be) by law, not presentable until the day following.

Legislators, church authorities, and others have taken but little heed of this situation as affecting financial transactions. At present, the 365 days of the year include 289 which are holidays in some one or more countries. By abolishing Sunday observance, and introducing a shorter day-week the Soviet Union has added another element of variation to the confusion already existing, and the present trend in the world at large is unfortunately toward more, rather than fewer, holidays. If legislators had adopted some plan for regularizing or unifying the system of naming or designating these holidays, the present state of things might not have been so trying as it is today, but they have, in some cases, named them as days of the month, and in the other cases as days of the week fixed by reference to other days of the week as, for example, "the first Monday in September" and the like. This practice, followed in nearly every country, has added enormously to the inconveniences and difficulties entailed upon the business community, so that today it is a matter of no little difficulty to keep track of the shifting holidays that take place in the various nations into which the world at large is divided. The Guaranty Trust Company of New York in publishing its annual volume on "Bank and Public Holidays Throughout the World" remarks that: "Knowledge of these dates is important to banking and business organizations because of the significance of delays in the delivery of business or personal cables, because of possible economies in the use of deferred cable rates, and because of changes involved in the date of presentment of negotiable papers."

This brief sketch of the calendar situation, as affecting banks and bankers, shows how important to them would be any change in the direction of uniformity of practice; and since that uniformity is not to be had through a complete harmonization of the world's ideas on political and religious questions, a step toward it at least may be made by harmonization of calendar practice.

Needless to say, it would be more than regrettable should so-called calendar reform operate to increase the troubles of the financial community, rather than to lessen them.

The upshot of the discussion then is simply that the desirability of calendar standardization to the banking community is so obvious that it needs no further discussion, but that this standardization must be of a kind that will help, and not impair, the present situation, otherwise all the arguments that would otherwise work in its favor will unquestionably work against it.

Now let us see precisely what are the interests of the banker in calendar establishment or regulation:

(1) First of all, he would like, if possible, to have the calendar, and

the holidays based on it, as stable as possible. This means that he would like to have them fall on dates which, so far as possible, represent the same days of the week in each year. This object probably cannot be fully attained.

(2) Second, he would like to have the transition from the present to any new system of calendar measurement as little disturbing, and as brief, as possible.

(3) The change, whatever it may be, should, as far as possible, leave existing legal and other arrangements untouched; change in them, if needed, to be separately accomplished.

(4) Calendar reform should not, in *his* opinion, involve new or less profitable ways of reckoning interest.

(5) Problems connected with the collection of money should not be rendered more difficult, but if possible, should be lessened in seriousness by calendar alteration.

## II

We may next examine the actual working of the two chief proposed plans of calendar reform. The greater number of public holidays (already designated as 289 in number) has been established often without much consideration of public interest or convenience, yet as time has gone by the structure of holidays thus created has become part and parcel of custom and usage. Whatever disturbance of it may occur should come as the result of careful consideration of an attempt to unify practice so far as may be, or at least to avoid unnecessary disturbance of existing arrangements. It is, therefore, interesting to see how it would be altered by proposed changes in the calendar.

A thirteen months' system of calendar construction would, of course, entirely alter the location of days of the week, as compared with present usage, stereotyping them and rendering them fixed in relation to the calendar in general. The effect would naturally be to place a good many of them on days which will prove permanently, instead of sporadically, inconvenient, or which have been avoided in the original selection of the holiday. In all, the thirteen-month-plan would change at least 23 holidays, exclusive of Sundays.

The twelve-month calendar arrangement, on the other hand, will almost completely avoid any such disturbance. The World Calendar, for example, changes only seven days. "Two days, the 29th and 30th of February, are added, the 31st of March is taken away, to April is given a 31st day; the 31st days of May and August are eliminated, and the seventh day, the 31st of December, is converted to 'Year Day,' an extra-day; the second Saturday, December 30th." Let us see in detail how this would affect the holiday situation.

(1) The two "new" or "extra" days in February need not be considered. They will not affect present arrangements.

(2) March 31st is a holiday only in Siam, Uruguay, and the Virgin Islands. In these three countries, some change would be necessary as the "day" disappears.

(3) The additional day proposed for April—the 31st—need not be discussed for the same reasons that apply to additions in February.

(4) May 31st, which is to be omitted, is a holiday nowhere in the world.

(5) August 31st is a holiday in Holland and the territories of that country. It, however, is the Queen's birthday, and of course will change to some other date when the present Queen of Holland comes to the end of her reign and is succeeded by another ruler, in any case.

(6) December 31st, which is to disappear, is a legal holiday in eleven countries and custom makes it a half-holiday in many others; inasmuch as the evening of that day is New Year's Eve. The World Calendar, however, provides for "Year Day" on December 31st (the second Saturday December 30th), so that there would be no occasion for change. Those countries which have legal holidays on the day preceding New Year's would simply continue them, and those which grant a half-holiday by custom would thus take it on the afternoon of Saturday, the second December 30th.

It thus appears that no changes would be necessitated in holiday arrangements by the introduction of The World Calendar except as regards March 31 in Siam, Uruguay and the Virgin Islands; and August 31 in Dutch territory (and there only during the reign of the present Queen). It is the smallest and least important change that could be expected to follow from any modification of present calendar arrangements —so unimportant as to be practically negligible. The banking community would thus find in The World Calendar no disturbance of existing holiday arrangements, but could proceed as before without the necessity of revisions or modifications of existing practice. So far as this goes, it gives The World Calendar plan the negative merit of not interfering with banking. Has it any claims of a positive sort?

## III

In banking the element of time is fundamental because banking service is measured on a time basis. The charge for such banking service is called interest or discount; and thus an important phase of proposed calendar changes relates to present methods of calculating interest. As things stand, there are two methods for such calculation, the one involving the use of 365 days in the year as the basis of reckoning, while the other is

based on 360 days. The latter is, doubtless, the most generally used method of calculation at banks. Thus, for example, supposing that the current rate of interest or discount is 4 per cent per annum, it is the custom of many bankers to reckon a ninety-day note as one-fourth of a year and hence to apply a rate of 1 per cent to the principal of the loan. If, for example, A has borrowed $1,000 at 4 per cent per annum, the interest is $40; but his bank usually charges him $10 for a ninety day period of borrowing. The subject of reckoning in this way has had the attention of the Federal Reserve Board and of other bodies and the Board at one time gave orders to use 365 days as a basis of computation, then changed its decision under pressure from the banks, later making other modifications affecting Reserve banks themselves. Today there is, as already stated, difference of practice, but the most usual method is that based on a 360-day year, with corresponding cost to the borrower.

What difference, if any, would the adoption of calendar reform make? Probably the practice of treating ninety days as a quarter of a year arose out of the fact that the first quarter did actually contain ninety days, whereas the second contained 91, the third 92 days and the fourth 92. As there was no regularity in the number of days in the quarter and as ninety was the easiest unit of reckoning, being divisible by 30, the terms "30, 60, and 90 days" came by custom to represent one-twelfth, one-sixth and one-fourth of a year respectively, and to be charged for at that rate when reckoning interest—to the corresponding apparent profit of the banker. With a thirteen-month year each of a standard 28-days-per-month, the division into halves, quarters, sixths and twelfths is lost. From this, it might be expected that the reckoning of interest in the future would come to be based on the exact number of days mentioned in a note or draft. Experience does not confirm such an expectation, but rather suggests the substitution of a way of reckoning based on 28 days (4 weeks). Germany uses such a method in reckoning the eligibility of paper at the Reichsbank, but its use is rare elsewhere. Its introduction would be an inconvenient and useless innovation. Its general introduction would involve widespread changes in credit terms.

Under the plan proposed in The World Calendar system, there is no variation from the twelve-month year and no reason to expect any abandonment of the use of halves, quarter, sixths, and twelfths in reckoning interest. Since, however, the halves and quarters would consist of equal numbers of days (182 and 91 in each case), it may reasonably be expected that the practice of reckoning a conventional number of days when computing interest will be favored and that the computation will tend to be made on the basis of a 364 day year. A quarter's interest under The World Calendar will then be one-quarter of the per annum rate and will be paid for 91 days of actual use, while a "thirty day" note

will tend to be charged for as one-twelfth of the amount for a year and a sixty-day note as one-sixth of the yearly amount. Competition will be likely eventually to straighten out these payments, equalizing them upon a basis of 91 days per quarter by making the quarter the unit and reckoning thirty days as one-third of it. The World Calendar will thus help to confirm the practice of reckoning interest for a number of days corresponding to quarterly periods, while it may improve present practice owing to its influence in restoring the four quarters of the year to a basis of equality in length, and thus restoring the older practice of bargaining for three or six months.

## IV.

Perhaps more important than any other aspect of the calendar question as viewed from a banking standpoint is, however, the problem of presentment of paper for acceptance or payment. The arrangement of the calendar determines the dates of presentment or payment or protest of negotiable paper. In regard to this matter, the prevailing rule as laid down by English law is that "all bills of exchange and promissory notes which are due and payable on any bank holiday shall be payable, and in case of no payment may be noted and protested, on the next following day, and not on such bank holiday—and for all the purposes of this Act, the day next following a bank holiday shall mean the next following day on which a bill of exchange may be lawfully noted or protested." This provision of law has been followed (with some variations) in the several states of the United States and in most other countries, so that it may be taken as a general provision, the term "bank holiday" being taken as practically equivalent to our "legal holiday."

It is evident that bankers are greatly inconvenienced in this connection if the dates of presentation of paper fall frequently on holidays, or especially if two such holidays fall in succession; unless the latter can be so foreshadowed as to make the maturity of paper fall on other dates. Most of the proposed calendar changes would lessen or overcome this difficulty or inconvenience growing out of the troubles involved in presentation of paper, since they would stereotype the calendar and enable bankers to know exactly in advance the days of the week upon which holidays would invariably fall. This in itself would be of material assistance to bankers. Would they have a choice in this respect between the thirteen month and twelve month variants now proposed? As to this the situation is plain if we recall what has already been said above regarding the legal changes in holidays that will be necessitated by a thirteen month calendar. Unquestionably, it is far too much to expect that all nations—all states of the United States—should simultaneously revise their holiday systems, much less that they should simultaneously revise them contem-

poraneously with a simultaneous revision of the calendar. Assume now the adoption of a thirteen month calendar, and it is obvious that extraordinary confusion in the holiday situation and in the presentation of paper, greatly exceeding that which now exists, would be the result. On the other hand, The World Calendar with its twelve month basis and its actual non-interference with existing holidays (as already indicated) would introduce no confusion on that score, and would leave the banking public subject only to the unavoidable inconvenience resulting from non-simultaneous change to any new calendar plan.

## V.

Thus far what has been said has had chiefly to do with banking in the "commercial" or short term sense of that term. There is another large field which includes investment banking, or in other words that kind of banking which has to do with the issue, sale, and trading in investment securities. International banking is today more largely concerned with transfers of capital, which usually take this investment form, than it is with short term banking operations which involve the making and discounting of commercial paper.

Investment banking obligations, such as notes, bonds, mortgages, and the like, run for specified terms of years, and they usually are today accompanied by coupons which fall due at a specified maturity recurring twice a year. This maturity may fall on any dates that will divide the year into two approximately equal halves (or quarters if a quarterly division be desired). As a matter of fact, the first of the month is usually selected, although in a smaller number of cases, the fifteenth has been so chosen. In a few cases, some irregular date, such as the fifth or other day of the month has been designated for special reasons. It was, up to a few years ago, customary to prefer the half-yearly or quarterly, first-of-the-month dates as those for the payment of interest (January 1, April 1, July 1 and October 1). With the increasing number of bond issues in the hands of investors, however, this tendency has altered, and today there is a drift toward distribution throughout the year so as to have approximately equal amounts falling due on the first of each month, in order to equalize the demands for funds, and for other reasons. The older quarterly dates are still regarded as more desirable when feasible. With preferred stocks, dates of payment of dividend are ordinarily named in the instrument itself, and there has been a strong tendency to distribute these dates of payment in much the same way adopted in the case of bonds and notes. It still remains true that in some companies the establishment of the date of payment is made by the directors so that it may be moved (within moderate limits) each half or quarter year.

The total amount of bonds and preferred stocks outstanding cannot

be stated with accuracy. There are, however, some 1608 issues of bonds listed on the New York Stock Exchange alone, and the total number so listed in the world at large would doubtless be several times as great. Preferred stock issues number 454 and thus would increase the number of fixed payments. Now, in the event of a change in calendar arrangements to a thirteen month basis, it would apparently be necessary to provide by law for a conversion of dates. July 1 would no longer be the dividing date between half years. That dividing date would apparently be the fourteenth of a month with a new name. The entire quarterly and half-yearly basis for the payment of bond interest would disappear, and would have to be replaced by a new system of dates.

Why would not such new dates answer the purpose equally well? Possibly they might, when the entire financial mechanism had been readjusted on a new basis—if it could be; but it is certain that this process of readjustment would involve an immense amount of confusion, legal controversy and other disturbance to trade and industry. Perhaps investment bankers might adopt the plan of paying interest at the opening of each month, or twelve times each year, as some oil companies used to pay monthly dividends during the boom period. That is not likely, and in the absence of some plan of payment that would synchronize the interest payments with the opening of semi-annual, quarterly, or monthly periods, there must be necessarily an intolerable discrepancy between the monthly operating accounts and statistics which every concern must maintain, and the banking accounts which grow out of them. Much has been said of the value and advantage of a thirteen month division of the year from the standpoint of cost-accounting and estimating. This advantage, if it exists, would be offset by an equal disadvantage in connection with banking and finance which requires an even division of the year into months, with fiscal periods coinciding with firsts or fifteenths in every quarter. The requirement is nearly as stringent in the field of public finance and taxation as in that of banking and private finance, if not quite so.

In much of the discussion about calendar reform, great attention is given to the question of statistics and the effect of the reform thereon. It is generally stated, and widely assumed, that the proposed thirteen-month division of the year would, in some way not very clearly explained, be more "scientific" than a twelve-month division. When this statement or implication is run down, it seems to come to the assertion that, with months consisting of four weeks of equal length, it is easier to make up computations or tables designed to show time costs, or work assignments in manufacturing. This is true, and the error in its use in the calendar discussion lies in the assumption that what is true in *some* factories is true everywhere. It is not true in any kind of banking that a thirteen-

month division would facilitate the estimation of costs. Salaries are not there paid by the day or week, and costs are computed on the basis of number of operations required of a given staff. What is of far more importance than this immediate cost study in banking is the study of comparative periods in past years, the contrasting of seasonal trends, and the like. Of course, the complete disorganization of the present system of measuring time by the introduction of a thirteen-month calendar would render such comparisons based on past experience wholly worthless. How would a banker, for example, compare clearing house transactions for the month of "Sol, 1935" with those for July 1930? He could get useful results only by reducing his data to a daily basis and recombining them. Needless to say, this would be practically out of the question in ordinary life, so that the banker would be, in effect, without the guide of past comparisons, until enough time had elapsed under the new plan for the establishment of a fresh basis of experience measured on the thirteen month plan.

In banking, as in other businesses, the inconvenience and increased cost of thirteen monthly divisions, with the statements, closing of books, etc., that belong to them, would add to costs and inconveniences. There is probably no business in which the statistical losses from a thirteen-month division of the year would be so great as in banking and finance. It is a possibility from which the entire financial community would revolt if they were given a voice in the matter.

## VII.

To sum up the argument on the calendar question, from the standpoint of banking and finance, we may lay down with certainty the following conclusions:

(1) Sound calendar reform would be very helpful and desirable, in banking and financial organization. Soundness, from its standpoint, would consist first of all in stabilizing dates, ending the shifting of days of the week from year to year, and generally standardizing business days and holidays.

(2) Such a calendar reform might, however, easily be undertaken in a way that would add to, instead of decreasing, present difficulties and inconveniences. In that case it would be worse than useless.

(3) The thirteen-month division would add to present troubles with holidays, destroy the present fiscal basis of investment banking, and render wholly unmanageable comparisons with former years.

(4) The twelve-month division would accomplish all that is helpful or necessary to banking and finance, and would do it without the disturbances involved in other proposals.

# RESULT OF QUESTIONNAIRES

*By* Charles Clayton Wylie

*Secretary-Treasurer of the University Association for the Study of Calendar Reform, Associate Professor in Astronomy, University of Iowa*

DURING the past year the University Association for the Study of Calendar Reform has been engaged in making an impartial study of certain problems pertaining to calendar revision. This summer it has canvassed representative groups in the United States, including bankers, railroad officials and educators. It is believed that the more than one thousand replies received should give a fairly accurate cross section of the minds of these groups.

The University Association for the Study of Calendar Reform has a membership representing more than fifty American universities and colleges, including Chicago, Illinois, Iowa, Northwestern, Columbia, Harvard, Princeton, Yale, California, Stanford, Washington, and other such institutions. The recent growth of its membership is significant of an increasing interest in calendar reform among American educators, and it is hoped that soon all the stronger colleges in the country will give calendar study attention, with one or more members in the Association for the purpose of coordinating an organized and unified work of investigation and instruction. We believe that a great deal of informational activity is needed before the advisability of calendar reform is generally recognized throughout the United States, and that this educational work can perhaps best be carried on in schools, colleges, universities and scientific organizations.

Questionnaires are a valuable index to public opinion on any question, as is indicated by the success of the *Literary Digest* in forecasting the results of the recent presidential elections from replies to questionnaires.

The three questionnaires sent out by our Association were similar in form, each including information summarized from the League of Nations report, and outlining the two more favored plans for calendar simplification. The 12-month plan was explained on page 2, and chiefly from material which The World Calendar Association, of New York City, kindly furnished. The 13-month plan was explained on page 3, and chiefly from material kindly furnished by M. N. Stiles, of Rochester, New York (American headquarters of the International Fixed Calendar League, sponsors of the 13-month plan). As the Association's membership includes both 12-month and 13-month advocates, it was necessary to rewrite these explanations many times before an agreement was reached on something for the circular.

Of the 192 replies received from *railroad and transportation* officials, there was a substantial majority favoring calendar reform, with a preponderance of opinion supporting the 12-month plan of revision. The results were as follows:

| | |
|---|---|
| Transportation men favoring calendar reform | 60% |
| Transportation men opposing calendar reform | 36% |
| Transportation men favoring 13-month revision | 16% |
| Transportation men favoring 12-month revision | 62% |

The 573 replies received from *bank and trust company* officials indicate for this group a conservative attitude toward the whole question. Indeed, those opposing calendar reform have a small plurality over those supporting it. Many bankers sent with their replies a statement that the existing business depression is so serious that the writers believe the present is an inopportune time to consider any change in the calendar. It is fair to deduce from this that many bankers who have registered themselves as opposed to calendar reform would change their votes if the question was presented to them after business conditions have returned to normal. This is also indicated by the fact that the great majority, 74 per cent, indicated a choice between the 12-month and 13-month proposals for revision. Only 2 per cent replied definitely "Neither." The following are the percentages shown by the bankers' replies:

| | |
|---|---|
| Bankers favoring calendar reform | 47% |
| Bankers opposing calendar reform | 49% |
| Bankers favoring 13-month revision | 20% |
| Bankers favoring 12-month revision | 54% |

Among *educators* the results are more decisive, and in agreement with the trend of articles published in the learned journals on the subject in recent years. Of the 278 replies received to date from university and college professors, a strong majority favors calendar reform; and, as with the other groups, there is a decided preference for the 12-month plan. The percentages are as follows:

| | |
|---|---|
| Educators favoring calendar reform | 90% |
| Educators opposing calendar reform | 7% |
| Educators favoring 13-month revision | 28% |
| Educators favoring 12-month revision | 64% |

Among prominent educators replying in favor of the 13-month revision are: Professor Edwin B. Frost, Director of the Yerkes Observatory; Professor L. P. Sieg, Dean of the Graduate School, University of Pittsburgh; and Professor C. S. Boucher, Dean of the College of Arts, Literature, and Sciences, University of Chicago. Among prominent supporters of the 12-month revision are: Professor Henry Crew, of Northwestern, former president of the American Physical Society; Professor A. J. Dempster, of Chicago, who was awarded the 1929 $1,000 prize of the

American Association for the Advancement of Science; and Professor E. V. Huntington of Harvard, former president of the Mathematical Association of America.

It is interesting to compare these results with the percentages for the Wilmington Chamber of Commerce. This questionnaire was issued to the entire membership of the Chamber of Commerce of Wilmington, Delaware, about 1200 members, by The World Calendar Association. It was found that 60 per cent favored calendar reform, 30 per cent preferred the 13-month revision, and 37 per cent preferred the 12-month revision. This suggests that the 12-month revision has been gaining in favor for the past few months. A comparison with the results of questionnaires sent out by the Eastman group two years before shows startling differences, however. Of 1433 replies, 80 per cent favored calendar revision, and 98 per cent of those expressing a preference favored the 13-month plan.

These figures suggest that in recent years there has been an overwhelming reaction against the 13-month plan, and a corresponding growth of sentiment in favor of the 12-month revision. We do not, however, accept this as real. A few have changed, but the number giving the 13-month plan intelligent support is probably greater than when the Eastman questionnaires were sent out.

The movement for calendar reform in this country has been, and still is, largely under the direction of ardent 13-month advocates. (We must give them credit for the interest aroused.) With that leadership it is natural that others should feel, as Dean Madden writes, "consideration of the revised 12-month has been largely precluded thus far by the aggressive sponsorship of the 13-month plan." One of the speakers at the June meeting of the League of Nations Preparatory Committee stated that "In the questionnaire distributed by the Eastman Committee, the 12-month plan was represented by a particularly bad example of a 12-month revision, which was probably not clearly understood by most of those who answered." There is no doubt that the 12-month revision has been so poorly understood that persons writing or speaking in favor of something less radical have found that interpreted as opposition to any calendar revision. To avoid unpleasant misinterpretations, many advocates of 12-month revision have therefore been keeping on the sidelines waiting for a more opportune time to present that viewpoint. Within the past year, the interest in calendar reform has been growing, and The World Calendar Association has given the 12-month group a much needed leadership.

Questionnaires, to be really valuable, must be simply stated and intelligible to a fairly casual reading. The text of our questionnaire, for example, confines itself to the following: "1. Are you in favor of revising the calendar? (Answer yes or no.) 2. As between the revisions, do you prefer the 12-month or the 13-month? (Answer 12 or 13.)"

# TIME PROBLEMS OF SCHOOLS

*By* Dr. William T. Bawden

*Editor of The Industrial Education Magazine; Formerly Assistant to Commissioner, U. S. Office of Education, Washington*

AT THE opening of school in September every supervisor, principal, and superintendent of schools is confronted with the problem of laying out a schedule of dates for important events of various kinds, each of which, for reasons of its own, must occur at a certain stated time, and each of which must also occur at a time having a predetermined relation to certain other events. Committees responsible for laying out the program for a series of association or club meetings for the year, or the semester, face the same situation.

The arrangement of a series of dates for any one of these essential purposes is curiously complicated by the vagaries of the calendar, which we have inherited from predecessors so remote that probably not one person in a thousand knows its origin. In view of the advances in scientific knowledge in modern times, it seems incredible that we are working under a calendar set up by Julius Caesar, in 46 B.C., and revised for the last time by Pope Gregory, in 1582.

The fact is, of course, that we all accept the calendar, as we do the weather, and "do nothing about it," because we have not sufficient imagination to appreciate that anything can be done.

School opens, let us say, on Tuesday following Labor Day, September 8. Certain reports are desired on the Saturday following Friday of the sixth week of school—on what day of what month will that day fall? This problem is merely typical of those that must be solved anew with the beginning of every school year. The superintendent wishes to meet all principals on the first Tuesday afternoon of each school month; the high-school principals hold their faculty-meetings on the first and third Mondays; the elementary-school principals hold their faculty-meetings every Wednesday afternoon; and so on. How many calculations must be made in the preparation of schedules to accommodate requirements such as these? How many supervisors in your school system try to plan one meeting each month for the teachers they are expected to help? Sometimes a special dispensation from the superintendent's office is necessary to clear the schedule for one monthly meeting. Another set of calculations must then be worked out!

The situation might be relieved a little if it were convenient to secure copies of the 1932 calendar when they are needed to work on these schedules. However, custom has decreed that December is the proper time to distribute next year's calendar. While there is no prospect of relief in

time to affect the preparation of schedules this year, it is interesting to note that a movement for calendar reform is under way, and has assumed international proportions, which it is hoped will eventuate in some form of "perpetual" calendar; that is, one that does not vary from year to year. Naturally, the discussion is bringing out substantial differences of opinion, and irreconcilable proposals. The agitation has reached the status of recognition by the League of Nations, which has called an International Conference on the subject, to meet in Geneva, in October.

It is said that more than 200 different proposals for revising the calendar have already been received by the committee which is engineering the preliminary arrangements. Of these, two suggested reforms appear to be receiving the major amount of publicity, at least in the United States. The 13-month revision has much to commend it, but it would seem that the objections against the division of the year into 13 units are sufficiently weighty to prevent its adoption. The unique advantage of the year of 12 months is that this number is divisible into halves, thirds, quarters, and sixths, which facilitates the keeping of records and the making of comparisons by periods of varying lengths; whereas, 13 is a prime number.

I am urging teachers to study this matter because I believe that, of all classes of people, teachers should be informed about this movement. When you stop to think of it, does it not seem strange that a topic of such social significance has received no more attention in journals for teachers?

That simplification of the calendar is greatly needed is evident to any thoughtful person when his attention is called to it. If it be true that "the high value and importance of such a change in human life will not be appreciated by the mass of human beings until some time after it has been put into effect," and if "the great mass of public opinion everywhere is wholly indifferent," then there is good ground for fearing that its consummation may be prevented, and that simply by the active agitation of noisy, but otherwise unimportant, minorities.

When the time comes for doing something about this matter of calendar reform, every teacher should have some opinion, which he is prepared to express, and which he can support with reasons, showing that he has thought about the subject and has not been caught napping.

Educators have a double interest in any proposed plan for simplifying the calendar. As individuals, we have occasion to "use" the calendar in our daily work to a greater extent than most individuals not charged with management responsibility in business or industry. As educators, it is our task to teach the facts of the calendar, and its use, to the oncoming generation of children and youth. In both capacities, it will be greatly to our advantage if some practicable plan for simplifying the calendar can be devised and carried into effect.

# FUNDAMENTAL PROBLEMS

*By* PHILLIPPE GERIGNY
Secretary of the Societe Astronomique de France

(Abstracted from the French by C. D. Morris)

Calendar reform was one of the first subjects taken up by the French Astronomical Society after it was founded in 1887 under the presidency of Camille Flammarion. In a prize contest for the most workable plan of calendar simplification, the Society gave both its first and second awards to 12-month plans. It rejected as impracticable all 13-month proposals. A report on the Society's researches was made by its secretary, M. Gerigny, and this was published in a series of articles in the Society's official organ.

WHILE the whole world recognizes that the Gregorian calendar as it is now in use throughout the civilized world presents very serious imperfections, the relative importance of these imperfections is differently appraised by different observers and the methods suggested for remedying calendar defects are numerous and varied.

The principal faults of the Gregorian calendar may be summed up as follows:

1. The inequality of the years, which sometimes contains 365 days, sometimes 366.

2. The imperfections of the Gregorian cycle of 400 years, which works out in such a way that the average year under our present system consists of 365.2425 days, while the actual astronomical year is 365.2422 days, creating an error of one full day in about 35 hundred years.

3. The arbitrary character of the division of the year into 12 months, each about 30 days long. The month does not correspond even approximately to any astronomical period and of course is not precisely one-twelfth of a year, and the various months are unequal, some having 31 days, some 30 or 29.

5. The purely arbitrary character of a week of 7 days, which has no basis except the antiquity of its origin.

6. The failure of the days of the week and the days of the year to coincide in successive years, thereby compelling intricate calculations whenever anyone wishes to know the day of the week on which a given day of the year will fall.

7. The lack of any agreement between the days of the week and the days of the month in different months.

8. The absence of any decimal divisions in time measurement.

9. The arbitrary date fixed for the beginning of the year which was established by Charles the Ninth for the first of January, although this date has no relation to any astronomical or seasonal phenomenon.

10. The numbering of years according to the Christian era gives the whole calendar a religious significance which is likely to offend the sentiments of non-Christian populations. This appears particularly useless as the dates selected for the beginning of the Christian era do not correspond to the actual date of the birth of Jesus Christ.

11. The arbitrary and illogical character of the time units adopted for calendar use.

Some of these eleven points may be dismissed as practically unimportant. Others constitute well-founded objections deserving serious consideration as to whether it is possible to correct them without introducing defects still more serious.

There is one fundamental consideration which must dominate all intelligent studies of the calendar and which introduces a major difference between the problem of measuring time and that of all other systems of weight or measure. This is the double movement of the earth, first around its own axis and then around the sun. Each of these movements produces certain recurring phenomena which play an important role in human existence.

Units of length or of weight can be purely arbitrary but the actual succession of day and night compel us to regulate our lives by the daily apparent movement of the sun, thus imposing on us in an absolute and positive fashion the solar day as our fundamental unit of time.

But the day is too short a unit for extended periods of time. If one were starting anew on a theoretical calendar, the idea might suggest itself of using a decimal multiple of the day for measuring purposes—for example, a period of 100 days or 1000 days, as the metric system employs the hectometer and the kilometer for measuring linear distances. If all days were exactly alike, such a theoretical calendar would work beautifully and all our calendar problems would be solved forthwith. In a world without seasons, such as Jupiter, the year has no meaning and the cycle of days could be anything you like, but on the planet Earth, the seasons bring us alternately long days and long nights, oppressive heat and rigorous cold, activity and sleep.

We are obliged to recognize seasonal phenomena in the world which surrounds us, for they rule all our occupations. The quarterly period of seasonal succession imposes itself upon us as a unit of time with an authority no less absolute than the period of day and night.

This, then, is what gives birth to the first difficulty of the calendar problem, for the period which astronomers call the year is not composed of an exact number of days. It is about 365¼ days, and it even varies slightly through the ages, although this variation is too slight to bother us much for some thousands of years to come.

It is obviously impossible to adopt for practical purposes a year which

is not composed of an exact number of days. Since we cannot renounce the seasons and replace the year by a decimal period of 100 days or 1000 days, there are obviously only two alternatives. The first would be to adopt arbitrarily a year consisting of the exact number of days which comes nearest to the actual astronomical year and let it go at that. In other words, to adopt the year of 365 days and never mind what happens with the extra fraction. That was the solution which was adopted by the ancient Egyptians. Their year consisted invariably of 365 days. Every year was precisely equal. Of course the year was too short by one-fourth of a day and the various seasons piled up an increasing error of one day every four years. Thus the Spring equinox was a month from the calendar in 120 years; and in 1460 years, the four seasons made a complete tour of the year. The ancient Egyptians saw no particular inconvenience in this annual variation. On the contrary, they thought that this system was quite advantageous because at the end of 1460 years all the seasons had been "sanctified" by a complete cycle of the different religious fetes which were celebrated on fixed days of the year.

But, of course, modern civilization can hardly accommodate itself to such a system. The calendar is not merely an arbitrary table for giving names and numbers to successive days, it is also a classification of the days which are to come and by it we lay out in advance our work and our pleasure, our private and professional occupations, our plans and our habits. To everyone of us it is a picture of the succession of the seasons and its dates automatically indicate to us certain particulars which can be predicted and counted upon, such as the approximate hours of sunrise and sunset, the general quality of the weather and so forth. We would not understand it at all if the same seasons did not come at the same dates and we would be greatly inconvenienced because we are accustomed to modifying our habits and changing our various occupations according to the way in which the seasons roll around on the calendar.

The two great historical reforms of the calendar had for their purpose the adjustment of the calendar year into more complete agreement with the astronomical year. Since we cannot accept the "wandering year" of the Egyptians, it is necessary to resign ourselves to the second solution, which has been imposed on the civilized world by Julius Caesar and by Pope Gregory XIII. This consists of having years of varying lengths, some 365 and some 366 days, combined in such a way that the result will be as near as possible to an average of 365.2422 days.

Under this arrangement the Solstices and the Equinoxes are displaced by a few hours during the 365-day years which are too short, then when the 366-day year comes around, which is too long, the equinox finds itself suddenly pulled back in the opposite direction. By this device the seasons are kept fairly well in line and the error is never great.

Having shown how the present calendar meets the fundamental necessity of a numerical adjustment between the astronomical year and the succession of astronomical days, we may now turn to the practical question of what reforms are needed and what are the most important considerations to keep in view in formulating them and putting them into effect. There are three fundamentals that must be accepted by every student of calendar reform. First, modifications of the present calendar should be practical. Second, they should be acceptable. Third, they should be universal, with no particular ties binding them to any religion, race or nation.

Under the head of practicality, let us glance over the history of the existing calendar. This so-called Gregorian calendar is not the work of a day or a moment, imposed on a world by a legislature. It is rather the result of the wisdom of many ages and many generations of men. It is based on an ancient Roman calendar whose origin is lost in the antiquity of the legends of Romulus and Numa Pompilius. It has grown slowly from those early beginnings, changed many times as science progressed, but never completely transformed.

The calendar of Romulus, according to legend, had a year of ten months and 304 days. This was reformed by Numa, who introduced the months of January and February, increasing the number of days in a year up to 355. Eventually, this imperfect year was brought into approximate agreement with the astronomical year by adding an extra month every two years. This extra month was called Mercedonius, and by a process almost inconceivably fantastic, it was thrust in between the 23rd and 24th days of February. But in spite of this ingenious device, the calendar did not stay in accord with the sun, and finally, the Roman government in despair gave authority to the Grand Pontiffs to decide each year where there should be a month of Mercedonius and how long it should be. This solution, however, only increased the disorder, for the Pontiffs abused their privilege and lengthened or shortened the year according to their caprices or political exigencies. They became masters of advancing or retarding events, such as the election of magistrates. They made the calendar an instrument of corruption and fraud. The disorder had become so great at the time of Julius Caesar that harvest feasts sometimes came in winter and spring festivals in autumn.

Caesar's interest in the calendar, therefore, was primarily the zeal of a political reformer. He called to his aid the Egyptian astronomer, Sosigenes, and between them they established the "Julian calendar"—exactly like that now in existence, except that it had no seven-day weeks, dividing the month instead into Kalends, Nones and Ides. Of course, the Julian rule for Leap Years was slightly inaccurate inasmuch as it prescribed an invariable extra day every four years without exception. It is, perhaps, interesting to remark at this time that the extra day of Leap Year was

placed by Caesar at the same point of the calendar as the old month of Mercedonius, that is between the 23rd and 24th of February, and as the 23rd of February was called in Latin the "sixth day before the Kalends of March" (sextus dies) Leap Year received the name "bissextus dies," which the French still retain in their "jour bissextile."

When Caesar put his new calendar into effect in 46 B. C., he made the seasons and the new dates tally by imposing on the Roman Empire a year of 445 days, which the public came to call the "year of confusion."

The difficulty of getting a general understanding of any new calendar arrangement is shown by the fact that the Roman officials who were charged with putting the Julian calendar into effect did not quite understand the meaning of Leap Year, and for some time inserted an extra day every three years instead of every four years. The resulting error was corrected under Augustus by arbitrary suppression of enough days to bring the calendar into line with its original purpose. Caesar's error in his adjustment of Leap Years amounted to about 11 minutes a year. This difference appeared unimportant at first, but as time passed, it developed into a full day's error every 130 years. At the end of the 16th century, the error was ten days and the Spring Equinox came on March 11 instead of March 21. Pope Gregory found that Easter Day was beginning to get out of place, and so inaugurated the Gregorian reform which pulled the Equinox back to March 21 by suppressing ten days. He also provided against future difficulties of the same kind by a rule which omitted three Leap Days in each period of 400 years. Mathematically speaking, there is still a slight error in the adjustment, but it is so insignificant that 4000 years will pass before the error amounts to a full day.

In seeking the support of the whole world to changes in the calendar, it is necessary to consider carefully whether these changes are universal in their application. Do they belong too completely to western civilizations or to the Christian religion? Have they anything in common with India, China, Japan or other important parts of the modern world?

A truly universal calendar should have no special application to any nation, to any religion, or to any particular climate. It should be adaptable easily to the usages of all people, to their laws and to their religions. It should have nothing about it that belongs exclusively to a single nation, for national pride is one of the most jealous sentiments of the human heart and any project of reform which offends national susceptibilities is lost from the start. An example of this is found in the repeated unsuccessful attempts to establish an international meridian.

The Gregorian calendar has in a high degree the quality of universality. Nothing in it tags the seasons to a particular climate or to the history of any particular nation. As a working basis for reform, it will serve our purpose.

# HELPING THE ACCOUNTANT

By I. B. McGladrey

Among members of the American Institute of Accountants, the firm of McGladrey, Billings, Prouty & Tomkins is known as one of the foremost mid-western groups of certified public accountants, with main offices in Cedar Rapids, Iowa, and branch or associated offices in seven other cities. Mr. McGladrey is a former President of the Iowa Society of Certified Public Accountants, is Secretary-Treasurer of the Iowa Board of Accountancy, and is Director of the American Society of Certified Public Accountants.

ACCOUNTANCY has been aptly called the handmaiden of business. Whatever assists the accountant to translate, analyze and compare more accurately and effectively the multifarious activities of the commercial world is of value to business. Let us consider why changes in the present calendar would be of benefit to the accountant, also which proposed calendar would be most advantageous.

The principal difficulties encountered with the present calendar are the differences in total length and in number of business days as between months, quarters and half years in the same year, also the differences in number of week days between the same subdivisions when compared with the corresponding time elements in a different year.

Months vary in length from 28 to 31 days, quarters from 90 to 92 days and half-years from 181 to 184 days. Since many operating expenses like rent and salaries are paid on a fixed basis it will be seen that some of these time elements are benefited at the expense of others from an operating standpoint. Differences in the number of week days even in months of the same total length, owing to variability in number of Sundays, further complicate matters. This latter difficulty applies with particular force to a comparison of a month with the same month in another year which may have a different number of week days owing to our "roving" Sunday.

While there have been a large number of revised calendars proposed for adoption by international action, two plans have been advanced which are receiving serious consideration.

One which has been prepared largely in Europe although sponsored by a few American business concerns proposes to divide the year into thirteen months of exactly four weeks each with the extra day to complete the 365 days in the year added as a second Saturday at the end of the year. This proposed thirteen-month calendar is called the International fixed Calendar.

The other plan, which while adapted largely from previous suggestions, has been advocated recently in the United States, continues the present division of the year into twelve months, but with slight changes which gives

the first month in each quarter 31 days with 5 Sundays and the other two months 30 days with 4 Sundays each. Thus each month has 26 week days, each quarter has 91 days and is the exact duplicate of the other quarters, and the half years are, of course, the same in length and arrangement. The extra day necessary to complete the year is interpolated at the end of the year as an additional Saturday as under the plan previously mentioned. This plan is called The World Calendar.

Each of the foregoing proposed calendars provides for leap year by adding an extra Saturday at the end of June.

For the purposes of this discussion these two leading plans of calendar revision only will be considered.

Both of these calendars have some very marked advantages over the present plan. Each is perpetual, i.e., is unchanged from year to year, also each month has the same number of week days, barring holidays, as every other month.

The thirteen month calendar has one indubitable advantage from the accountant's standpoint and that is that weeks and months coincide in all cases. This is particularly advantageous in the case of a manufacturing business or other enterprise which normally has a large payroll on a weekly basis.

There are, however, some very serious disadvantages which are inescapable under the thirteen month plan. The year would not be divisible into quarters and halves without a great deal of trouble. As dividends, interest and other payments are frequently made on quarterly or half-yearly bases, this is a distinct disadvantage.

The Federal income tax law provides for payment of the tax on a quarterly basis. Local taxes are also usually payable on a quarterly or semi-annual basis. These arrangements, like most interest and dividend dates, would be disarranged by adoption of the International Fixed Calendar.

Furthermore, many concerns have established fiscal years different from the calendar year. The Federal Government, also, as well as most political subdivisions, closes the fiscal year on June 30 of each year. All such fiscal year closings would be disarranged. The June 30 closing would be especially hard to reconcile, as this thirteen month calendar throws its extra month in between June and July.

In many other ways the disruption of present business records, arrangement and comparisons would be much more violent than under The World Calendar.

The greater expense to business which thirteen operating units in a year would entail would likewise be considerable. Fixed expenses have a tendency to resist efforts at reduction, so the probable result would be that many, like rent and salaries, could not always be arranged on the thirteen month basis to coincide in total with the aggregate for the year

under the present plan. Considerable extra labor would also be involved in the additional month's postings and preparation of monthly statements to customers, operating statements, etc. The increase in the number of checks to be issued for payment of all the expenses payable at the first of each month and the extra work in recording such payments, and the filing of invoices and statements would have a tendency to increase administrative overhead at a time when the attention of accountants and executives is being directed toward the reduction of such expense.

As under the highly competitive conditions under which business concerns of all kinds must operate, it is necessary to have frequent operating and financial statements prepared, the accountant would find the number 13 an awkward one to use for the numerous computations necessary to prepare monthly statements of this nature. Quarterly statements would be even more difficult under the thirteen-month plan, while with The World Calendar, they would be particularly easy as the end of the last week in each quarter would always come on the last day of the quarter. Since under an unchanging calendar each operating unit, whether month, quarter, half-year or year, would have the same arrangement and number of week days, Sundays and holidays, comparisons with the same units would be made with an exactitude not now possible.

Some of the easiest short cuts for computing interest would be impracticable with a thirteen-month year, while under The World Calendar the equalized twelve months would make such computations easier than under the present calendar.

With the increasing use of labor-saving machinery, it is likely that the business world will before long operate largely on a five-day-week basis. The World Calendar is so arranged that such a transition would be especially easy under it.

The transition from the present calendar to the calendar based on twelve equalized months would cause almost no difficulty from the accountant's viewpoint. While some comparisons of time units under the new and the old basis would be only approximate without painstaking rearrangement, the same difficulty exists under the present plan. For the future, comparisons of months, quarters and half-years with corresponding units of other years, both under the new calendar, would be absolutely exact.

With reference to the fact that with the revised twelve-month calendar the number of days in any month would not be a multiple of 7, the number of days in a week, so that weeks would overlap from one month to another, this difficulty might be taken care of in any one of several ways. As for concerns which make up weekly payrolls, since each month would have exactly 26 week days without considering holidays, the time included might alternate from 6 to 7 work days, thus giving two pay periods of 6 days and

two of 7 days in each month. Another method might be to continue to pay by the week and accrue the payroll at the end of each month as is done at present by many, if not most, concerns that prepare monthly operating statements. In any case, at the end of each quarter, half year and year the end of the week would coincide with the end of the month under The World Calendar plan. Where quarterly statements of operations only are prepared no extra work would be encountered in this connection.

Railroad accounting and operating would be greatly benefited by the revised twelve-month calendar. As payrolls are made out twice each month instead of on a weekly basis the individual wages would be equalized. Operating schedules would not have to be continually revised as under the present shifting calendar.

The revised twelve month calendar would be of great help in the preparation of operating and financial budgets. Months, quarters and half-years would have exactly the same business days in successive years. Under the present calendar the constant shifting in the number of week days or business days in months causes continuous confusion from a statistical and commercial viewpoint. These continued changes are now as high as 19 per cent. Then, too, it is the common experience of business concerns that different days of the week have unequal business values. Under our present shifting calendar a given month may have four Saturdays in one year and five in the next. The exact reproduction of the calendar of any year takes place only once in 28 years.

The transition to the thirteen-month calendar would occasion many serious readjustments from a business and accounting standpoint. The change to The World Calendar of twelve equalized months would cause hardly a ripple.

Dating devices under the latter plan could be corrected by the addition to the "bands" of signs to indicate "Year Day" and "Leap Day," dates which either have no numbered figure in the revised calendar or are indicated by a repetition of the previous date. The World Calendar, for example, designates its Year Day as a second December 30 falling on a double Saturday, and its extra Leap Day (each leap year) as a second June 30, also falling on a double Saturday. These extra days could be indicated on dating machines and time stamps with the letters Y and L in place of the numeral for the day of the month.

The advantages in recording, analyzing and comparing business and financial data are so obvious and so real, and the difficulties of the transition so trivial that the change to the equalized twelve-month calendar should be accomplished at the earliest practicable date.

# FROM THE HOUSE OF COMMONS

*By* C. DAVID STELLING
*Honorary Secretary of the Parliamentary Committee on Calendar Reform, London*

Under the chairmanship of Lt.-Col. Sir Philip W. Richardson, M.P., a group composed principally of influential Members of the British Parliament was recently organized in London with the purpose of presenting the salient facts regarding Calendar Reform to the British public. The Committee held its first meeting in the House of Commons in August. Its membership includes the following Members of Parliament: Captain R. C. Bourne; Peter Freeman, Esq.; Mrs. Leah Manning, J.P.; Ralph Morley, Esq.; Miss Eleanor Rathbone; Sir Cooper Rawson; C. Ernest Winterton, Esq.; Sir John J. Withers. Non-Parliamentary members from the various interested groups include Whately C. Arnold, representing business; Rev. Dr. W. F. Geikie Cobb, representing the clergy; Prof. A. Ritchie-Scott, representing education. The following article is taken from the Committee's first published announcement of its position. Readers desiring further information may address the Secretary of the Committee at 38 Parliament St., London, S.W.1.

CALENDAR reform today occupies much the same position in the British public mind as did Daylight Saving twenty years ago. In Parliament and in the Press Daylight Saving was long treated as the idea of a crank, until its introduction during the war suddenly showed that it was an eminently desirable and practical scheme. One day it was a joke and the next day it was a fact—and a very useful fact at that.

Today Calendar Reform is regarded by most people who have given no thought to the matter as an amiable fad, not to be taken seriously. Tomorrow Calendar Reform may be a fact, for unawares to most people in England, the subject has attracted considerable attention abroad. Indeed, wherever practical men have given consideration to the defects of the present calendar, the case for a reform of some kind has appeared unanswerable.

The question of reforming the calendar is no new one. Eighty years ago the philosopher, Auguste Comte, put forward a serious proposal for a year of thirteen months. In 1914 a Calendar Reform Bill to fix the date of Easter and equalize the quarters was introduced in the House of Commons at the instance of the International Chamber of Commerce. After the war the question was again brought into the arena of practical politics by the same body, which, meeting in London ten years ago, urged that a special Congress of the nations should be convened for the purpose of adopting a perpetual and fixed calendar. Other international bodies passed similar resolutions and finally the matter came before the League of Nations, which appointed a special Committee of Inquiry to make a searching investigation of the subject. In October a Committee of the

League of Nations will meet to consider the views of various countries and to make definite recommendations to the Council of the League.

The indifference shown to Calendar Reform in England cannot be justified in face of the attention given to the question elsewhere, particularly as there are different schemes of reform, competing powerfully for general acceptance and involving, in one case, the drastic change of dividing the year into thirteen months instead of twelve.

Positive views on the question have already been submitted to the League of Nations' Committee by representatives of the principal nations and in the absence of a definite expression of opinion by Great Britain, it is by no means improbable that a scheme unacceptable to this country might be left to hold the field.

The object of the Parliamentary Committee on Calendar Reform is to present the salient facts relating to Calendar Reform with a view to stimulating further interest and enlightening public opinion. It is hoped by this means to receive sufficient evidence of the British attitude towards Calendar Reform to make it possible to submit a national recommendation to the League of Nations.

The basis of our calendar was established by Julius Cæsar two years before he landed in Britain. His successor, Augustus, however, made a number of alterations in the length of the months, mainly because he could not allow the month that bore his name (August) to be shorter than the month that bore his predecessor's name (July). Subject to certain adjustments (as to Leap Year)) made 1,600 years later by Pope Gregory XIII, the calendar we use today is the Julian calendar as botched to gratify the vanity of the Emperor Augustus.

It is patently not an efficient basis of calculation. The first quarter normally contains 90 days, the second 91, the third and fourth 92. One half-year is three days longer than the other. The year itself is not divisible into an exact number of weeks. Dates, therefore, never fall on the same day from year to year. The same month in different years may contain four Sundays or five. In consecutive months the number of working days varies.

The fundamental flaw in our calendar system arises from the fact that the year contains not 52 weeks, but 52 weeks plus one day.

The fact that the year generally begins in the middle of a week, and ends in the middle of a week, and that there are sometimes 52 pay days in the year and sometimes 53, creates all sorts of extra work which would be saved if the year contained exactly 52 weeks, and the quarter exactly 13. Payments of interests, dividends and rents, and the currency of Bills of Exchange are similarly complicated by the want of a fixed calendar. In order to make accurate daily calculations in current accounts, banks are obliged to use very complicated special tables.

Trade returns, banking statistics, figures of output and transport figures do not permit of exact comparison from year to year because of the totally different commercial value of different days of the week. For example, taking Saturday as a half-day, July, 1931, had 25 working days with five Wednesdays and four week-ends, while July, 1932, will have only 23½ working days with four Wednesdays and five week-ends. Such discrepancies—and they are persistent—involve making elaborate allowances and qualifications in all kinds of statistical information.

A particular defect is the variation of Easter (and with it Ash Wednesday, Ascension Day, Whitsuntide and other festivals). Easter Day at present may fall on any date from March 22nd to April 25th. Such a variation causes inconvenience in school, university and law terms, which has its reactions in almost every other sphere of our national life.

We have become so accustomed to the annoyances of our calendar that we take it as natural to have to consult an almanac every time we want to know on what day of the week a particular date, such as Armistice Day, falls or what will be the date of, e.g., August Bank Holiday. With a fixed calendar we could have a permanent almanac printed on our watchcases, and should rarely have need to consult it. Children could learn the whole almanac at school far more readily than the multiplication table.

For the individual in his ordinary social and business relations—and in a special degree for the woman in her day-to-day arrangements—the present calendar creates an accumulation of avoidable inconveniences, but the more vital case for Calendar Reform lies in the fact that in a highly rationalized age we are dependent more and more upon the organized knowledge that is based on statistics.

Such considerations as are here indicated brought home the need of calendar reform to many people in many countries, until finally the League of Nations decided to go into the whole matter.

After a thorough examination of nearly 200 proposals, three possible reforms have emerged. The first merely seeks to make the quarters approximately equal. (The simplest way of doing this would be to give back to February the day that Augustus took away and added to August.) Any such reform as this would do little to remove the existing defects and it is questioned whether the advantages would justify the change.

The other two reforms go much further. Both of them propose to adopt 364 days as the basis of the calendar and to regard the 365th day as an extra (or "supplementary") day, with a name of its own. (In Leap Year there would be two such extra days.) The first of these schemes proposes to adhere to the 12-month year—divided into four equal quarters. The second proposes to divide the year into 13 months.

The common aim of both proposals is to establish a fixed year, just

as we have a fixed week which always begins on the same day, and a fixed day which always begins at the same hour. The advantage of a fixed year may, perhaps, be best imagined by considering how chaotic would be the effect if we "unfixed" our days and reckoned them as beginning when the sun rose—at a different time every morning. That would be something like what we are now doing with the year, which begins in 1931 on a Thursday, in 1932 on a Friday and in 1933 on a Sunday.

The schemes may be briefly summarized as follows:

*The twelve-month year of equal quarters:* (1) Each quarter contains 91 days, the first month containing 31 days and the other two months 30 each. (2) The first day of every year and the first day of every quarter is a Sunday. (3) The second month of each quarter always begins on a Wednesday and the third month on a Friday. (4) The day following December 30th is a holiday with a special day-name (e.g., New Year's Eve.)

*The thirteen-month year of equal months:* (1) Every month contains 28 days. (2) The new month is called "Sol" and is introduced between June and July. (3) Every month begins on a Sunday. (4) The day following December 28 is a holiday known as "Year Day."

Both schemes provide perpetual calendars, i.e., calendars in which the same dates fall on the same days in every year.

The first scheme is in substance that embodied in the Calendar Reform Bill introduced in the House of Commons in 1914. It is perhaps significant to recall that the proposer of that bill was the late Mr. Robert Pearce, M.P., who was the principal champion in Parliament of the Daylight Saving Bill.

The second scheme originated with Mr. Moses B. Cotsworth, an ardent Calendar Reformer, and has been strongly advocated in the United States.

The advantages of the "Sol" scheme are obvious. With a 13-month calendar, absolute uniformity is obtained from month to month, and statistically all months are strictly comparable. Its main disadvantages are (*a*) that 13 is an unmanageable number, difficult to divide by, impossible to divide into; (*b*) that it involves so many violent changes from the present practice that it is unlikely to be acceptable to public opinion (thus, the Prince of Wales' birthday would fall on Sol 6th); (*c*) that the quarters and half-years would not contain a whole number of months, thus making the compilation of periodic statistics troublesome and costly; (*d*) that there would be 13 monthly balancings and payments instead of 12; (*e*) that it would provoke popular prejudice by its use of the number 13 and by the fact that the thirteenth day of every month would fall on a Friday. Such a challenge to superstition cannot be ignored in considering a change in the calendar that affects everybody.

The twelve-month calendar of equal quarters has the initial advantage

of involving a comparatively small change from the present system. Every month except the first month of each quarter has 30 days. January, April, July and October have 31, with five Sundays. Thus every month of the year has 26 week-days. This gives identity of length in the quarters and other uniformities within the limits of a working compromise. It may be said to "tidy up" the present calendar with the least possible disturbance of the present practice.

As the twelve-month calendar of equal quarters is the suggested reform most likely to commend itself to people in English-speaking countries, it may be advisable to set out some of its practical effects in greater detail:

*For Business Purposes:* (a) Fixtures which have now to be varied, according to the day of the week, can be standardized, e.g., a market or fair which is held on the first Thursday in September will always fall on September 7. (b) Every month will contain 26 week-days and statistics between one year and another will be strictly comparable whether on the basis of months, quarters or half years. (c) With equal quarters and half-years calculations of interest, etc., and, indeed, all departments of book-keeping will be simplified for bankers and accountants.

*For Social Purposes:* (a) All annual social fixtures will have their own permanent dates. Thus, the Royal Academy will always open on Monday, May 6; August Bank Holiday will always fall on August 6; and Summer Time will always end on October 8. (b) Birthdays, wedding anniversaries and all other anniversaries will always fall on the same day of the week.

*For General Purposes:* (a) Law terms, university terms and school terms can be standardized and all the numerous fixtures which depend on these terms can be permanently fixed. (b) Comparative statistics on health matters, and all other matters affecting public affairs will be uniform as between the same months in different years, whereas at present, for example, traffic statistics between March and March may be non-comparable because the two months have a different number of week-ends.

It may be added that while the 12-month calendar of equal quarters would be a great convenience in the stabilizing of various familiar public events and dates, the 13-month calendar would involve a violent break with the past and throw all kinds of traditional fixtures out of gear.

A number of pamphlets and leaflets setting out in considerable detail the advantages claimed for the 13-month year, have been issued by the "International Fixed Calendar League" of which Mr. Moses B. Cotsworth, originator of the Thirteen-Month Fixed Calendar, is the director. Readers who desire further information on this aspect of the subject are advised to apply to the office of the "League" at 1, Regent Street, London.

During the past few years, national committees of enquiry into the

state of public opinion on the subject of Calendar Reform, have been set up in some thirty countries, at the request of the League of Nations. Many of these committees have already presented their reports to Geneva.

The British Committee of Enquiry, which completed its labors with the presentation of its report, found that owing to the economic crisis, public opinion on this question had been less active than it would have been in normal circumstances; and that the public attached more importance to the stabilization of Easter than to any other feature of Calendar Reform.

The Swiss Committee for Calendar Reform came almost unanimously to the following point of view, based on the results of extensive enquiries: "The Gregorian calendar has various imperfections, so that the introduction of an improved and simplified calendar appears to be useful and necessary, provided that no other changes than are absolutely needful should be made in old-established customs and habits. Preference should be given to a Perpetual Calendar on the 12-month or equal-quarter plan. The 13-month calendar should be rejected. Easter should be fixed."

In the United States there was set up unofficially a National Committee of Calendar Simplification. This Committee issued an unstated number of questionnaires to which it received 1,433 replies, of which 1,154 favored either some form of calendar simplification, or an international conference to consider the question. Only 488 expressed any preference as to system, and of these 480 favored the 13-month plan, on the subject of which a very considerable amount of propaganda literature had been circulated. Another American organization, the World Calendar Association, sent representatives to Geneva who submitted that a substantial section of American opinion was opposed to the 13-month year and favored the equal-quarter 12-month plan.

It may be noted here that orthodox Jews and Seventh Day Adventists are opposed to the introduction of "supplementary" days.

When the General Conference of Communications and Transit meets at Geneva in October to determine what recommendations as to Calendar Reform it shall make to the Council of the League of Nations, it will have before it the Report of the Preparatory Committee which met in June. The main features of this report may be summarized as follows:

"The October Conference will deal only with the social and economic aspects of Calendar Reform. Questions of an essentially religious character which may arise will be left to the religious authorities concerned. The general reform of the calendar would perhaps not be regarded by the Holy See as of such a pre-eminently religious nature as the question of the Stabilization of Easter. There is a strong general demand in all the principal countries for a stabilized Easter. The main defects of the present calendar—viz., the inequality in length of the divisions of the year and the want of fixity—are undisputed. Nine National Committees think the es-

tablishment of a Perpetual Calendar desirable. There would appear to be a majority—including the U. S. A. and France—in favor of a thirteen-month year and an influential minority in favor of the equal-quarter year of twelve months."

The main questions to be determined, therefore, are: (1) Should the Calendar be reformed, and, if so, should it be made perpetual? (2) If perpetual, by which system—an equal-quarter year of twelve months or a 13-equal-months year? (3) Should Easter be stabilized?

The idea that our calendar needs reforming will, perhaps, come as new to most people in Great Britain. They have known it all their lives and their conservative instincts incline them to argue that it is best to let well alone. But there is nothing sacrosanct about a calendar. It is merely a convenient method of dividing up the solar year, which happens to measure about 52 weeks, 1 day, 5 hours, 49 minutes—an awkward length.

Calendar reform is bound to come, because it is rational and in harmony with the spirit of a scientific labor-saving age; and also because women, whose influence on public affairs is becoming more and more powerful, will see to it that factors which help to make life run more smoothly for the housekeeper, the mother and the hostess, receive the attention they deserve. Once the new calendar has been instituted, we shall wonder why we were so long in bringing about so simple and advantageous a change in a system so obviously defective.

It has been the purpose of this article to make the facts about our calendar known to a wider public and so to arouse general interest in a matter of direct concern to everybody. The Parliamentary Committee on Calendar Reform hopes that when the League of Nations Conference meets at Geneva in October it will be possible for Britain's representative to say what cannot be said today—that British public opinion is alive to the desirability of rational reform and desires that definite action will be taken both to fix the date of Easter and to introduce a perpetual calendar with as little modification as possible of our present system.

# FRANCE'S AWAKENING

*By* Paul Louis Hervier

Secretary General of the Paris Intransigeant

For thirty years M. Hervier has been a student of international affairs and a writer on Anglo-French and Franco-American relations. As Secretary-General of the *Intransigeant*, a famous Paris daily which has the largest circulation of any evening newspaper in the world, he occupies an important place in French journalism. The long list of his books includes the standard French "Life of Dickens" and a "History of American Volunteers," the latter an appraisal of American effort in the World War. He is a constant contributor to the French magazines and newspapers, and is Associate Editor of the Nouvelle Revue. He plans to visit the United States for the first time during the coming year.

IF IT be true, as a French proverb says, that the press moulds public opinion, there is no occasion to compliment the Paris newspapers on the obstinate silence which they have maintained until very recently on the subject of calendar reform. Certainly this silence was not due to any lack of information, for active propaganda committees in England and America have bombarded French editors with masses of documents ever since the 13-month plan was presented to the League of Nations five years or more ago. But in the face of this bombardment the average French editor apparently decided to wait until the subject was actually under debate at the October meeting of the League, at which time he could exercise his time-honored prerogative of assailing every new measure.

However, the silence was broken in mid-summer by the Paris *Temps*, which published a long and carefully written article favoring the 12-month plan of revision. In two columns of significantly large type, this influential journal insisted that the time had come for France to express itself on the question of calendar simplification. And when the *Temps* speaks, its voice can no more be ignored by the French press than can the London *Times* in England, or the New York *Times* in America.

So it came about that the French press awakened, and the result has been a steady flow of articles, long and short, serious and flippant, informed and ignorant, which have undoubtedly served to make a large part of France calendar-conscious. Perhaps this development came a little tardily for the most effective action at Geneva in October; but none the less it was encouraging and satisfying to those who believe that some form of calendar simplification is inevitable, and that France should not lag behind other nations in giving the matter serious and thoughtful consideration.

The summons of the *Temps* was followed by an important declaration in favor of the 12-month plan from the Secretary General of the French Railroads, who informed the public that the French railroad management had repeatedly studied the various suggested projects for calendar reform in the light of their possible effect on railroad accounting and operation. The subject was first taken up by the railroads in 1924, and all proposals for a 13-month year were rejected at that time as impractical and likely to produce complication rather than simplification. The subject has been reconsidered several times since, and the railroads have each time arrived at the same conclusions. The latest re-statement of their position is firm and strong, and will undoubtedly have great weight in all official and business circles in France, as well as in the council of the League of Nations.

For students of Calendar Reform, it is perhaps worth while to make a record of the text of the latest official statement of the French railroads:

"In 1924, on the occasion of an inquiry undertaken by the International Association of Railroads for the League of Nations, the French railroads declared themselves favorable to a reform of the calendar. At the same time, they expressed their opposition to a 13-month calendar and their support of the plan which retained a 12-month division but equalized the quarters by making each quarter consist of two months of 30 days and one month of 31 days.

"In 1930 the International Association repeated its inquiry, and the French railroads replied that they remained unfavorable to any division of the year into 13 months, because such a calendar would completely overturn the existing administrative systems of the railroads and wipe out the very useful and necessary division of the year into halves and quarters, which ought to be preserved. It was carefully explained that as the number 13 was indivisible by 2, 3 or 4, any calendar containing 13 months would make it impossible conveniently to divide years into halves, thirds or fourths.

"It was pointed out that a 13-month calendar would increase the monthly accounting periods from 12 to 13, thereby augmenting the labor and cost of all tasks of accounting and of statistics.

"On the other hand, the railroad managements feel that the adoption of a *perpetual* calendar of 12 months, divided into four equal quarters, presents the following important advantages: (1) Quarters and half-years will be equal, and will contain an entire number of months and weeks; that is, each quarter will include 91 days, or 13 weeks, or 3 months. (2) Quarterly comparisons can be made without the adjustments or explanations which are now necessary. (3) Changes in dates and even in length of months will be insignificant and will do no violence to time-honored customs and traditions.

"Finally, the railroads feel that the fixation of Easter—and of other feast days which depend on it—is a project of great importance and value.

"The railroads desire to state that their representative on the Council of National Economy supported the 12-month plan before that body at a recent session for the examination of the whole subject of calendar reform."

The presentation of calendar reform in the Paris *Temps* was made by M. Georges Montorgeuil, an editorial writer whose sympathetic understanding of the public mind is well known. He very skilfully explained to his readers the importance of the question.

"Why is the League of Nations proposing to reform the calendar?" he asked in the opening of his article, and then went on:

"The average citizen is apathetic to calendar change. He says to himself that a new calendar won't bring him any more happiness, nor will it make him live any longer. If you ask him whether he isn't seriously inconvenienced by an Easter Day which wanders over a period of a month or more, he is likely to reply that the only important thing, as far as he is concerned, is that Easter shall surely come, sometime each year. And if all the other events for which he hopes were as certain as the return of Easter, he would be happy.

"The men at Geneva who are discussing calendar reform are not promising any improvement in living conditions as a result of it. They are doing a job of chronology and not of philosophy. They are students, economists and logicians. Their ambition is merely to set right a calendar which at the present time is so faulty and illogical that most of the people who use it don't know what it means or why it is as it is.

"Among the many problems which have agitated the world during the past century, consideration of the calendar has been largely neglected. Now and then some earnest soul has taken it up, but the task of remedying its defects has proved difficult. A dozen times the work has been started and abandoned, but this time there is a good possibility of its being carried through, for the cause has influential supporters in all civilized countries. We of France owe it to these earnest people, whose work is really for our good, to give sympathetic attention and understanding to their efforts."

With this much of introduction, the *Temps* outlines in great detail the 12-month plan, as officially set forth by the Swiss Committee under the chairmanship of Prof. Emile Marchand.

In conclusion the *Temps* insists that "sooner or later, calendar reform is inevitable—it is one of those movements which we cannot escape." The newspaper gives the League of Nations a flattering credit for the careful and complete studies which have been made on the subject. "The project for a new calendar is still in the elementary stages. It is

still only a suggestion, which invites study, argument and controversy, from all those who are competent and interested. In its present status, it is merely a basis for definite discussion. But it is on the order of the day, and while the League has other questions more immediately urgent, it has none which are more universal in their nature, or which more closely affect the entire world and every person in it.

"It is not a political question. It is a question of a fundamental and desirable simplification in our everyday life. We cannot remain indifferent to a matter that touches every part of every man's daily life. Do you wish to correct the calendar, to simplify it, to make it more logical, accesible, useful? A perpetual calendar, simple and direct, is now within our grasp."

In any consideration of the French awakening during the past few weeks, it is perhaps worthy of note that the American colony in Paris appears to be also definitely favorable to the 12-month plan. An editorial in the Paris *Herald* says: "Great opposition to the 13-month plan has been raised by an imposing section of the business community, on the ground chiefly that thirteen is a most unmanageable quantity; that as a divisor it would complicate bookkeeping, the reckoning of interest and dividends and the computation of values in many kinds of business activities, and that the mass of the public would be slow to accept it, if indeed it would not refuse to do so. It would, of course, be no longer possible without great inconvenience to treat of a quarter or the half of a year.

"These arguments have their weight, but their practical importance is perhaps overestimated. It is possible that business, after a reasonable period of disuse, would no longer regard the custom of considering the year in terms of quarters and halves as indispensable.

"The revised 12-month calendar as advocated by the World Calendar Association has unquestionable attractions. If this revision is adopted, probably the strongest factor to that end will be its readier acceptability to the world at large. It embodies no radical change, but it does embody ameliorations which would be eminently useful."

# SWITZERLAND'S VERDICT

*By* EMILE MARCHAND

*Chairman of the Swiss National Committee on Calendar Reform;*
*Professor of Science in the Swiss Federal Polytechnic School;*
*Director of the Swiss General Life Insurance Company*

INQUIRIES by the official Swiss committee into national opinion on the subject of calendar reform have shown that a general interest has been awakened among all sections of the population. Our inquiries were pursued not merely among business people, but among all sorts of cultural, technical, scientific, religious and governmental agencies.

For example, we have discussed this subject with all varieties of churchmen, with the various administrative officials of the Swiss government, with railroad men and directors of telephonic, telegraphic and postal services, with the courts and judicial authorities, the banks and insurance companies, the governments of cantons and municipalities, teachers in schools and universities, members of the 33 sections of the Union of Commerce and Industry, the Union of Arts and Measures, the Union of Farmers, the Association of Bankers, and the Association of the Press.

The verdict of informed public opinion in Switzerland is so clear that it cannot possibly be misunderstood. Ninety per cent of those we consulted are favorable to a simplification of the calendar.

Eighty-nine per cent of those we consulted are favorable to the plan of revision which has been recommended to the League of Nations by our committee. This plan preserves the 12-month calendar, but equalizes the quarters and divides each quarter into three months of 31, 30 and 30 days. The 365th day of the year is added at the end of December, and a similar addition is made to June in leap years. Thus a perpetual calendar is established with a minimum of upheaval in accepted customs.

Ninety-nine per cent of those we consulted are favorable to the fixation of Easter. Agreement on the date is a matter for religious leaders to decide, and whatever they decide will have the sympathetic support of political, scientific and economic bodies throughout Switzerland. Our inquiries from the religious leaders indicate that there is no dogmatic objection to fixation of Easter, and our committee is definitely of the opinion that this important measure of improvement should be put into effect at the earliest possible date, even if it precedes a general simplification of the calendar.

The 13-month calendar finds no important support in Switzerland. It is definitely opposed by the great body of business, educational and religious authorities. A 12-month simplification, however, will not meet with any difficulties in Switzerland.

Our findings in this matter received the official recognition of the Federal Council of the Swiss government on June 1, 1931.

# FROM THE MAILBAG

The World Calendar 12-month year would have better opportunity of acceptance by various nations than would the radical change to the 13-month fixed calendar year.—THOMAS F. MCMAHON, International President, United Textile Workers of America, New York City.

Thirteen months does not seem practical, and involves too many costly changes of doubtful advantage.—C. W. RICHARDSON, President, Toledo Business University, Toledo, Ohio.

The 13-month plan would be very objectionable to me personally, but your 12-month plan appears to have practically all the advantages, with none of the defects, of the 13-month.—GEORGE A. HAMSON, President, Rotary Club, Wellsboro, Pa.

Living would be enhanced in many ways by the adoption of a perpetual calendar. An ideal calendar may not be feasible, but the proposed World Calendar could readily be put into use. — J. C. ARTHUR, Professor, Purdue University, Lafayette, Ind.

In my opinion the 12-month plan offered by this Association is very simple, workable, and should be adopted.—DANIEL G. BURKERT, Vice-President, Eastern Foundry Company, Boyertown, Pa.

Being in both the steamship and ferry business, I believe your plan is the best for us.—GEORGE B. JUNKIN, President, Wilson Line, Philadelphia.

I am of the opinion that the 12-month revised calendar would be an advantage in accounting, banking and other businesses, and work no disadvantage.—J. M. CLEAVELAND, President, Pere Marquette Line Steamers, Milwaukee.

The World Calendar plan is far superior to the drastic change advocated for thirteen equal months. The 12-month plan accomplishes the same desired results without a severe shock to those who would adhere to the present system because of its so-called antiquity.—CHARLES J. LOVVORN, Printer, Moore Haven, Fla.

We will continue to publish excerpts favoring The World Calendar, as we are heartily in favor of it.—ROBERT FALCONER, Editor The American Ironsmith, Chicago.

If the present calendar must be reformed, in my opinion the most reasonable and fitting one is the 12-month plan offered by The World Calendar Association. — JOHN K. CRUZE, Editor, Lithuanian-American Press, Brooklyn, N. Y.

I've just read The Journal of Calendar Reform, and I'm all for revision therein planned.—P. R. COLEMAN-NORTON, Professor, Princeton University.

The Journal of Calendar Reform is splendidly clear and educational. I hope it has a wide circulation.—FRANCIS A. GRAY, Postmaster, Middletown Springs, Vt.

I earnestly favor the proposed World Calendar and hope to see its universal adoption. — JAMES T. BEARD, Editorial Staff, Coal Age, Danbury, Conn.

A calendar revision in these modern times is necessary, and, as outlined by The World Calendar Association, is practical, and I hope will be adopted and made universal.—ERNEST H. WILLIAMS, Trade Union Secretary, Portland, Ore.

The World Calendar seems much more feasible than the 13-month plan. It commends itself because of relatively fewer changes and no very serious obstacles.—RUTH FLEMING, Librarian, State Teachers' College, San Francisco.

The World Calendar is, in my opinion, an effective improvement over our present irregular calendar. The World Calendar is simple, well planned, and easily understood.—JOHN G. DUDLEY, Lawyer, Cherrydale, Va.

The only practical and economic calendar for all classes. This method adapts itself to needs of humanity without humanity having to adapt itself to the change. — ROGER D. SMITH, Master of Trains, L. & N. R. R., Corbin, Ky.

# JOURNAL OF CALENDAR REFORM

EDITORS

CHARLES D. MORRIS CARL LIDDLE

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INCREASING interest in calendar reform has been a significant development of the past summer, not only in America but also in Europe. This development is the more impressive, because it has taken place in the face of world events of such paramount importance as to excuse postponement of public interest in any problem not immediately connected with economic depression or political upheaval.

However, the fact remains that despite all current preoccupations, the world-public is awakening to calendar reform. In England a strong committee has been organized to support the 12-month plan. In France opposition to the 13-month calendar has been emphatically voiced by the powerful executive committee of the French railroads. In Switzerland, official questionnaires have revealed a practically unanimous advocacy of the 12-month revision among all classes of the population.

In America many new voices have been heard, and education has taken a definite stand through a committee of university professors representing fifty of the leading colleges. The annual convention of American railway treasurers has devoted an afternoon to calendar reform, with influential spokesmen arguing both for and against change. Other important gatherings in various parts of the country have found the calendar asking for a place on their programs. Bankers, lawyers, business men, librarians and labor officials have expressed their interest through letters and questionnaires.

This awakening prepares the way for more definite action at the League of Nations in October than had heretofere been thought possible. It is still doubtful whether the October meeting in Geneva will care to make any definite choice between the two leading plans for calendar improvement. But even though public opinion is not yet ready for a final decision on this question, the time has come to eliminate lesser proposals which heretofore have hampered official discussions.

Nothing less than a perpetual calendar will satisfy the demands of the situation,—that much is clear. Halfway measures no longer have important supporters, for they would frustrate comparability, regularity and stability. And on the religious side it is recognized that to have a stabilized Easter without a perpetual calendar would still keep it a wandering holiday, a compromise short of the desired fulfillment.

# CURRENT PRESS COMMENT

## Long and Short Weeks

*New York Evening Post*

Some religious bodies object to the proposed thirteen-month calendar because it contains an extra day which once a year will cause an interval of eight days between Sundays instead of seven.

They are unmindful of the fact that the thing they object to has been in existence many years. When passengers cross the Pacific Ocean, coming east, and pass the 180th meridian, the day of the week and the date are repeated, a week of eight days being caused, or if the day happens to be Sunday there will be two Sundays in succession. If the ship is going west then a day is omitted, a six-day week resulting. If the omitted day happens to be Sunday or the Sabbath, then there is a thirteen-day interval between religious holidays.

The writer remembers an amusing incident on a ship coming east. One of the passengers was a feeble-minded old man traveling with his doctor. He was fond of playing checkers, but refrained from playing on Sunday. We crossed the meridian on Sunday and so the day was repeated. This puzzled the old man greatly, but he was true to his principles and refrained from checkers for two days.

## Science Speaks

*Columbus (Ohio) Dispatch*

The official organ of the American Association for the Advancement of Science is accustomed to express itself on matters of scientific interest only after careful consideration of the facts involved. When, therefore, one reads in last week's issue of "Science" that "it seems somewhat questionable at this time as to whether the world wants its calendar to be reformed," it is apparent that no general and world-wide enthusiasm for the overhauling of our calendar system is to be found.

Unofficial collections of opinion in various countries, through the medium of questionnaires sent to clubs and business organizations, "have seemed to indicate," we are told, "that only in Germany and the United States is there marked enthusiasm for the venture." And "Science" does not say, since it could not truthfully be said, that this alleged marked enthusiasm in the United States has any existence in the vast majority of the American people.

The truth is that the great majority of our people are not conscious of any disadvantage to which they feel that they are subjected by the calendar as it stands.

## Educators Against 13 Months

*New York American*

Proposals for a calendar of thirteen 28-day months, as advocated by George Eastman, Rochester camera and film manufacturer, are being opposed by Prof. H. Parker Willis, of Columbia, and Dean John T. Madden, of New York University.

Prof. Willis, who had a prominent part in drafting the Federal reserve act, said:

"The difficulties growing out of irregularity of the present calendar, in their disturbance of banking, finance, bookkeeping and accounting, and all fundamental activities of business, have developed into a very powerful factor. But it would be a backward reform to replace the present calendar with one more complex."

Instead of the 13-month calendar, Prof. Willis and Dean Madden propose one of twelve months, giving February 30 days, with equalized 91-day quarters, and making the calendar perpetual by use of a Year Day without a week-day designation.

## The Two Plans

*Daily Telegraph, London*

The International Fixed Calendar proposes to make the year consist of thirteen months of twenty-eight days each.

The disadvantage of this plan is that a quarter-year would have to consist of 3¼ months, thirteen being a prime number, and therefore not divisible.

This inconvenience would be avoided by the rival plan—the Swiss Plan as amended by The World Calendar.

# MEMBERS OF THE WORLD CALENDAR ASSOCIATION

## 485 Madison Avenue, New York City

*Membership is based on an active interest in the study of an adequate and effective improvement of the calendar. Owing to lack of space, a large number of names have been omitted. They will be printed in future issues.*

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